

For each question, you need to find the answer and show your work. Each problem is worth 3 points: one for the correct answer and two for showing your work. Number 7 is worth 21 points (3 for each part). For some problems, you may just need to write out how you know you have the correct answer.

1. The lengths of two legs of a right triangle are 24 cm and 70 cm. What is the length of the hypotenuse?
2. The length of the hypotenuse of a right triangle is 65 yards. The length of one leg is 60 yards. What is the length of the other leg?
3. Find the length of the diagonal of a square whose sides measure 18 cm.
4. Find the length of the diagonal of rectangle whose sides measure 12 ft and 26 ft.

5. A ladder resting against the side of a building reaches 24 ft up the building. If the ladder is 40 ft long, how far from the building is the base of the ladder?

6. A ramp is used to reach the top of a staircase that is 10 ft above the ground. If the length of the ramp is 30 ft, how far from the staircase must the base of the ramp be placed? Round your answer to the nearest tenth of a foot.

7. Determine whether the following could be lengths of right triangles. Show your work

a. 3, 6, 9

b. 60, 156, 144

c. 56, 102, 105

d. 36, 48, 64

e. 15, 9, 12

f. 17, 31, 23

g. 28, 96, 100

Open-Ended Question: Answer the following question on this piece or a separate piece of paper. Make sure as you answer the open-ended question that you show your work AND explain how you know you are doing the correct work. YOU MUST EXPLAIN WHAT YOU ARE DOING!!!

A room in the shape of a rectangular prism is 12 ft long and 9 ft wide. The ceiling is 11 ft high.

A. If an insect flew the greatest possible straight-line distance in the room, how far would it travel, to the nearest foot? (HINT: Think three-dimensionally. Use the figure below to help out with this problem.)

B. How far would the insect travel if it flew at a diagonal along the long wall? The short wall?

